

**Notice of Allowability**

Application No.

09/701,809

Examiner

Shefali D Patel

Applicant(s)

HO ET AL.

Art Unit

2621

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Interview held on March 1, 2005.
2. ☒ The allowed claim(s) is/are 65-100,104-116,122,124 and 125.
3. ☒ The drawings filed on 22 February 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 3/3/05.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### EXAMINER'S AMENDMENT AND ALLOWANCE

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Jeffrey D. Sullivan (Reg. No. 43,170) on January 24, 2005 and also on March 1, 2005.

The application has been amended as follows:

Please cancel claims 101-103, 117-121, 123, and 126-128 without prejudice.

Amend claim 82 as follow:

Line 1, after the word "claim" delete "76" insert - - 77 - -.

Amend claim 97 as follow:

Line 2, after "obtained from" delete "e ither" insert - - either - -.

Amend claims 113, 115, 122, 124, and 125 as follow:

Line 2, after "data sample," insert - - as an aid to authenticating the source or authorization of unlabeled digital data for use or output, - -

Line 14, after "watermark data;" insert - -

f) formatting the embedded watermark data into a format suitable for orthogonal transformation;  
g) performing an orthogonal transformation on the formatted watermark data to reproduce the set of watermark data transform coefficients for use in generating the set of unlabeled digital data;

*Allowable Subject Matter*

2. Claims 65-100, 104-116, 122, and 124-125 are allowed and have been re-numbered 1-52.
3. The following is an examiner's statement of reasons for allowance:

The reasons for allowance regarding claims 65-100 and 104-112 are disclosed in an Office Action mailed on January 20, 2004 and the reasons are not repeated herein, but are incorporated by reference.

Independent claims 113, 115, 122, and 124-125 have been amended to incorporate and mirror the relevant analogous limitation of claim 65, which was allowed previously. Therefore, these claims are allowed for the same reasons as claim 65.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D Patel whose telephone number is 703-306-4182. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

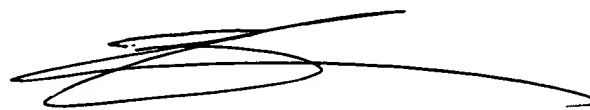
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel  
Examiner  
Art Unit 2621

March 2, 2005



BRIAN WERNER  
PRIMARY EXAMINER

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FROM Jeffrey D. Sullivan, Esq.  
DATE March 1, 2005  
PAGES 7 (including cover)

VOICE NO. 212 408-2589  
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TO Examiner Shefali D. Patel  
Patent and Trademark Office

FAX NO. 703-872-9306  
VOICE NO.

## MESSAGE

### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**Applicant :** Ho et al.

**Serial No. :** 09/701,809      **Group Art** 2621  
**Unit:**

**Filed :** February 22, 2001      **Examiner:** Shefali D. Patel

**Title:** METHOD FOR EMBEDDING IMAGE, AUDIO AND VIDEO  
WATERMARKS IN DIGITAL DATA

Dear Examiner Patel:

Thank you for your assistance in discussing this matter. We attach, in the form of an Informal Request For Entry Of Examiner's Amendment, our proposed claim amendments.

Please let us know if you need any further information or would like to discuss any other aspect of this applicatio

Best regards.

#### NY02:513607.1 Notice of Confidentiality

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CRITICAL DEADLINE, SEND BY: ASAP

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : Ho et al.  
Serial No. : 09/701,809                      Group Art Unit: 2621  
Filed : February 22, 2001                      Examiner: Shefali D. Patel  
Title: METHOD FOR EMBEDDING IMAGE, AUDIO AND VIDEO  
WATERMARKS IN DIGITAL DATA

**INFORMAL REQUEST FOR ENTRY OF AN  
EXAMINER'S AMENDMENT**

I hereby certify that this paper is being deposited with the United States Patent Office via a facsimile transmission addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on:

March 1, 2005

Date of Deposit

Jeffrey D. Sullivan

Attorney Name

  
Signature

43,170

PTO Reg. No.

March 1, 2005

Date of Signature

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This paper is submitted in consideration of the phone conversations held between Applicant and Examiner on February 28, 2005 and March 1, 2005 regarding the Final Office Action of August 11, 2004 for the above-identified patent application. Applicant respectfully requests that Examiner enter an Examiner's Amendment reflecting the below changes.

**Amendments to the Claims** are reflected beginning at page 2 of this paper. Please note that Applicant has not included a full listing of the claims due to the informal nature of this Amendment.

**Remarks** begin on page 6.

IN THE CLAIMS:

Please amend pending claim 82 to be dependent from claim 77.

Please amend pending claim 97 to replace --either-- for [e ither].

113. (Currently Amended) A method for extracting digital watermarking image data or digital watermarking audio data from a digital image, audio, or video data sample, as an aid to authenticating the source or authorization of unlabeled digital data for use or output, said method including the steps of:

- a) inputting a set of labeled digital data and unique key data containing information of locations of watermark data imposed as a label on the labeled digital data;
- b) mapping the set of labeled digital data into a format suitable for orthogonal transformation;
- c) performing an orthogonal transformation on the formatted labeled data to produce a set of labeled data transform coefficients;
- d) using the unique key to extract transform coefficients of orthogonally transformed watermark data from the locations in the set of labeled data transform coefficients specified in the key;
- e) using an inverse orthogonal transformation on the transformed watermark data to retrieve the embedded watermark data;
- f) formatting the embedded watermark data into a format suitable for orthogonal transformation;
- g) performing an orthogonal transformation on the formatted watermark data to reproduce the set of watermark data transform coefficients for use in generating the set of unlabeled digital data;

wherein the orthogonal transform performed on the labeled data is selected from the group consisting of a Discrete Cosine Transform (DCT); a Fourier transform; a Walsh- Hadamard transform; a Haar transform; a sine transform; and a Wavelet transform.

115. (Currently Amended) A method for extracting digital watermarking image data or digital watermarking audio data from a digital image, audio, or video data sample, as an aid to authenticating the source or authorization of unlabeled digital data for use or output, said method including the steps of:

- a) inputting a set of labeled digital data and unique key data containing information of locations of watermark data imposed as a label on the labeled digital data;
- b) mapping the set of labeled digital data into a format suitable for orthogonal transformation;
- c) performing an orthogonal transformation on the formatted labeled data to produce a set of labeled data transform coefficients;
- d) using the unique key to extract transform coefficients of orthogonally transformed watermark data from the locations in the set of labeled data transform coefficients specified in the key;
- e) using an inverse orthogonal transformation on the transformed watermark data to retrieve the embedded watermark data;
- f) formatting the embedded watermark data into a format suitable for orthogonal transformation;



g) performing an orthogonal transformation on the formatted watermark data to reproduce the set of watermark data transform coefficients for use in generating the set of unlabeled digital data;

wherein the inverse orthogonal transform performed on the watermark data is selected from the group consisting of an inverse Discrete Cosine Transform (DCT), an inverse Fourier transform, an inverse Walsh-Hadamard transform; an inverse Haar transform; an inverse sine transform; and an inverse Wavelet transform.

122. (Currently Amended) A method for extracting digital watermarking image data or digital watermarking audio data from a digital image, audio, or video data sample, as an aid to authenticating the source or authorization of unlabeled digital data for use or output, said method including the steps of:

- a) inputting a set of labeled digital data and unique key data containing information of locations of watermark data imposed as a label on the labeled digital data;
- b) mapping the set of labeled digital data into a format suitable for orthogonal transformation;
- c) performing an orthogonal transformation on the formatted labeled data to produce a set of labeled data transform coefficients;
- d) using the unique key to extract transform coefficients of orthogonally transformed watermark data from the locations in the set of labeled data transform coefficients specified in the key;
- e) using an inverse orthogonal transformation on the transformed watermark data to retrieve the embedded watermark data;
- f) formatting the embedded watermark data into a format suitable for orthogonal transformation;

g) performing an orthogonal transformation on the formatted watermark data to reproduce the set of watermark data transform coefficients for use in generating the set of unlabeled digital data;

wherein the labeled digital data is obtained from a sample stream representing digitized video and the labeled digitized video is obtained from selected from the group consisting of a Video Compact Disc (VCD) played on a VCD player; a Laser Disc (LD) played on a LD player; a Digital Versatile Disc (DVD) played on a DVD player; a digitized movie or still image contained within a video game or other software or a digital signal transmitted over a communications channel.

124. (Currently Amended) A method for extracting digital watermarking image data or digital watermarking audio data from a digital image, audio, or video data sample, as an aid to authenticating the source or authorization of unlabeled digital data for use or output, said method including the steps of:

- a) inputting a set of labeled digital data and unique key data containing information of locations of watermark data imposed as a label on the labeled digital data;
- b) mapping the set of labeled digital data into a format suitable for orthogonal transformation;
- c) performing an orthogonal transformation on the formatted labeled data to produce a set of labeled data transform coefficients;



d) using the unique key to extract transform coefficients of orthogonally transformed watermark data from the locations in the set of labeled data transform coefficients specified in the key;

e) using an inverse orthogonal transformation on the transformed watermark data to retrieve the embedded watermark data;

f) formatting the embedded watermark data into a format suitable for orthogonal transformation;

g) performing an orthogonal transformation on the formatted watermark data to reproduce the set of watermark data transform coefficients for use in generating the set of unlabeled digital data;

wherein the labeled digital data is obtained from a sample stream representing one or more channels of digitized sound or music and the labeled digitized sound or music is obtained from the group consisting of a Compact Disc (CD) played on a CD player; a Digital Audio Tape (DAT) played on a DAT player; a Laser Disc (LD) played on a LD player; from a Video Compact Disc (VCD) played on a VCD player.

125. (Currently Amended) A method for extracting digital watermarking image data or digital watermarking audio data from a digital image, audio, or video data sample, as an aid to authenticating the source or authorization of unlabeled digital data for use or output, said method including the steps of:

a) inputting a set of labeled digital data and unique key data containing information of locations of watermark data imposed as a label on the labeled digital data;

b) mapping the set of labeled digital data into a format suitable for orthogonal transformation;

c) performing an orthogonal transformation on the formatted labeled data to produce a set of labeled data transform coefficients;

d) using the unique key to extract transform coefficients of orthogonally transformed watermark data from the locations in the set of labeled data transform coefficients specified in the key;

e) using an inverse orthogonal transformation on the transformed watermark data to retrieve the embedded watermark data;

f) formatting the embedded watermark data into a format suitable for orthogonal transformation;

g) performing an orthogonal transformation on the formatted watermark data to reproduce the set of watermark data transform coefficients for use in generating the set of unlabeled digital data;

wherein the watermark digital data includes one or more data items selected from the group consisting of an owner's logo; an owner's trademark; a personal identification; an artist's recorded voice; and general terms for publisher distribution.

### REMARKS

Further to telephonic discussions with the Examiner, for which Applicants wish to express their gratitude, Applicants have made technical amendments to claims 82 and 97, and have further modified the enumerated claims 113, 115, 122, 124 and 125 in order to incorporate and "mirror" the relevant analogous limitations of claim 65 (previously indicated as allowable) in view of the reciprocal watermarking and extraction process. The enumerated claims now bear limitations analogous to those of claim 65: that is, the claims have been amended to cover the embodiment of the invention in which the additional steps are performed of: operating on the embedded watermark data by preparing said data for an orthogonal transform, performing an orthogonal transform on said data, and finally, generating the watermark coefficients for subsequent use in validating or authenticating original unlabeled data.

Although Examiner indicated telephonically that the suggested change was to incorporate into the subject claims steps analogous to steps (f) - (h) of claim 65, Applicants respectfully submit that this was not actually what Examiner is believed to require. Applicants respectfully bring to Examiner's attention the fact that steps (f) - (h) of claim 65 were steps already reflected in steps (a) - (c) of the enumerated claims. As claim 65 purports to watermark unlabeled data, it proceeds by 1) preparing the unlabeled data, 2) watermarking said data, and 3) outputting the labeled (watermarked) data. On the other hand, the enumerated claims operate by *extracting* the watermark from labeled data, and thus these claims begin where claim 65 ends. That is to say, the enumerated claims begin by handling labeled (watermarked) data - data from which the watermark coefficients are extracted and prepared for potential use in the validation, authentication, or preparation for output of the original, unlabeled data.


Accordingly, the enumerated claims have been amended to reflect these additional limitations as per the Examiner's instructions. Accordingly, the claims amended herein are believed to substantially "mirror" and incorporate the relevant limitations of allowable claim 65, albeit this was accomplished in slightly different fashion than that discussed telephonically.

Finally, as requested by the Examiner, Applicants have reviewed the pending claims and do not believe that the amendments proposed herein would lead to any literal duplication of claim coverage amongst respective claims.

Applicant respectfully submits that these claims are currently in state for allowance, and would ask that Examiner enter an Examiner's Amendment reflecting the above modifications and allow the modified claims.

Respectfully submitted,

Dated: March 1, 2005

  
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